

CLAIMS

1. A nucleic acid molecule constituting a human GABA_B receptor 1 promoter P1a, or a functionally equivalent modified form thereof, or an active fragment thereof.
2. A nucleic acid molecule according to claim 1 selected from:
 - (a) a nucleic acid molecule comprising a nucleotide sequence set forth as SEQ ID NO: 1;
 - (b) a nucleic acid molecule comprising a nucleotide sequence capable of hybridizing, under stringent conditions, to a nucleotide sequence complementary to the polypeptide coding region of a DNA molecule as defined in (a).
3. A nucleic acid molecule constituting a human GABA_B receptor 1 promoter P1b, or a functionally equivalent modified form thereof, or an active fragment thereof.
4. A nucleic acid molecule according to claim 1 selected from:
 - (a) a nucleic acid molecule comprising a nucleotide sequence set forth as SEQ ID NO: 2;
 - (b) a nucleic acid molecule comprising a nucleotide sequence capable of hybridizing, under stringent conditions, to a nucleotide sequence complementary to the polypeptide coding region of a DNA molecule as defined in (a).
5. A nucleic acid molecule comprising a nucleic acid molecule according to claim 1, in combination with a nucleic acid molecule according to claim 3.
6. A nucleic acid molecule comprising a nucleic acid molecule according to claim 2, in combination with a nucleic acid molecule according to claim 4.
7. A vector transformed with a nucleic acid molecule according to any one of claims 1 to 6.

8. A cultured cell host harboring a vector according to claim 7.
9. An expression system comprising a nucleic acid molecule constituting a human GABA_B receptor 1 promoter P1a, or a functionally equivalent modified form thereof, or an active fragment thereof.
10. An expression system according to claim 9, comprising a nucleic acid molecule selected from:
- (a) a nucleic acid molecule comprising a nucleotide sequence set forth as SEQ ID NO: 1;
- (b) a nucleic acid molecule comprising a nucleotide sequence capable of hybridizing, under stringent conditions, to a nucleotide sequence complementary to the polypeptide coding region of a DNA molecule as defined in (a).
11. An expression system comprising a nucleic acid molecule constituting a human GABA_B receptor 1 promoter P1b, or a functionally equivalent modified form thereof, or an active fragment thereof.
12. An expression system according to claim 11, comprising a nucleic acid molecule selected from:
- (a) a nucleic acid molecule comprising a nucleotide sequence set forth as SEQ ID NO: 2;
- (b) a nucleic acid molecule comprising a nucleotide sequence capable of hybridizing, under stringent conditions, to a nucleotide sequence complementary to the polypeptide coding region of a DNA molecule as defined in (a).
13. An expression system comprising a nucleic acid molecule according to claim 1, in combination with a nucleic acid molecule according to claim 3.
14. An expression system comprising a nucleic acid molecule according to claim 2, in combination with a nucleic acid molecule according to claim 4.

15. An expression system according to any one of claims 9 to 14, which, in addition, comprises a reporter gene.
- 5 16. An expression system according to claim 15, wherein the reporter gene is selected from:
- (a) the firefly luciferase gene,
 - (b) the bacterial amphenicol acetyl transferase (CAT) gene,
 - (c) the β -galactosidase (β -GAL) gene, and
 - 10 (d) the green fluorescent (GFP) gene.
17. An expression system according to claim 15 or claim 16, wherein the promoter and the reporter gene are positioned so that the expression system of the reporter gene is regulated by the GABA_B receptor 1 promoter.
- 15 18. An expression system according to any one of claims 9 to 17, wherein the said nucleic acid molecule is transformed in a vector.
19. An expression system according to claim 18, wherein said vector comprises an origin of replication and/or a dominant selection marker.
- 20 20. A host cell transfected with an expression system according to any one of claims 9 to 19.
- 25 21. A method of assay for GABA_B receptor promoter activity, comprising the use of a host cell according to claim 20.
22. A method for screening compounds which are modulators of GABA_B receptor 1 transcription, comprising the steps of:
- (a) transfecting a cell host with a suitable expression system comprising a nucleic acid molecule constituting a human GABA_B receptor 1 promoter P1a, and/or a
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human GABA_B receptor 1 promoter P1b, or functionally equivalent modified forms, or active fragments thereof coupled to a reporter gene;

(b) contacting a test compound with the cell; and

(c) determining whether the test compound modulates the level of expression of the reporter gene.

23. A method according to claim 22, wherein the said expression system is an expression system according to any one of claims 9 to 19.

24. A method according to claim 22, wherein the said the reporter gene is selected from:
(a) the firefly luciferase gene,
(b) the bacterial amphenicol acetyl transferase (CAT) gene,
(c) the β -galactosidase (β -GAL) gene, and
(d) the green fluorescent (GFP) gene.

25. The method according to claim 22, wherein the host cell endogenously expresses GABA_B receptor 1.

26. The method according to claim 22, wherein the host cell is further transfected with a suitable expression system comprising a nucleic acid molecule encoding one or more specific transcription factors.

27. The method according to claim 26, where the transcription factor is selected from the group: CREB-1, CREB-2, CREM-1, ATF-1, ATF-2, ATF-3, ATF-4, Sp1, Sp2, Sp3, Sp4, AP-1, and AP-2.

28. A transgenic non-human animal whose genome comprises an expression system comprising nucleic acid molecules constituting GABA_B receptor promoters P1a and/or P1b, or functionally equivalent modified forms thereof, or active fragments thereof, coupled to a reporter gene.

29. A transgenic non-human animal whose genome comprises an expression system according to any one of claims 9 to 19.
30. A method for the screening of compounds which are modulators of GABA_B receptor
1 transcription, comprising the use of a transgenic non-human animal according to
claim 28 or claim 29.
31. A method for the screening of compounds which are modulators of GABA_B receptor
1 transcription, comprising the use of tissues or cells isolated from a transgenic non-
human animal according to claim 28 or claim 29.

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